

WHAT IS CLAIMED IS:

1. A photovoltaic power generation system comprising a solar cell module, a restricted area including an area having the solar cell module
5 installed therein, detecting means for detecting intrusion of an intruder into the restricted area to output a signal, and electric shock preventing means activated by the signal outputted from the detecting means.
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2. The photovoltaic power generation system according to Claim 1, comprising means for preventing the intrusion of the intruder into the restricted area.
- 15 3. The photovoltaic power generation system according to Claim 2, wherein the means for preventing the intrusion of the intruder is a stockade, a wall, a fence, or a ditch.
- 20 4. The photovoltaic power generation system according to Claim 2, wherein the means for preventing the intrusion of the intruder is double means for preventing the intrusion of the intruder.
- 25 5. The photovoltaic power generation system according to Claim 4, wherein the detecting means is mounted on inside means for preventing the intrusion of

the intruder out of the double means for preventing the intrusion of the intruder.

6. The photovoltaic power generation system
5 according to Claim 1, wherein the detecting means is
either of a proximity sensor, an optical sensor, a
magnetic sensor, a magnet sensor, a temperature sensor,
a humidity sensor, an impact sensor, an acceleration
sensor, a weight sensor, a current sensor, and an
10 electromagnetic sensor.

7. The photovoltaic power generation system
according to Claim 1, wherein the electric shock
preventing means is means for shorting the solar cell
15 module or a solar cell string consisting of a plurality
of the solar cell modules.

8. The photovoltaic power generation system
according to Claim 7, wherein the electric shock
20 preventing means comprises a circuit breaker and the
circuit breaker disconnects the solar cell module or
the solar cell string from the photovoltaic power
generation system to deactivate the module or the
string.

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9. The photovoltaic power generation system
according to Claim 7, wherein the solar cell string is

at least two solar cell strings connected in parallel to each other.

10. The photovoltaic power generation system
5 according to Claim 1, wherein the electric shock preventing means has a function of releasing an electric shock preventing action.

11. The photovoltaic power generation system
10 according to Claim 1, wherein the solar cell module is installed so that a photovoltaic element provided in an outermost surface on the light-receiving side is exposed directly to the atmosphere.

15 12. The photovoltaic power generation system according to Claim 1, wherein the solar cell module has a coating only on an outermost surface on the light-receiving side.

20 13. The photovoltaic power generation system according to Claim 1, wherein the solar cell module is coated at least on a module-by-module basis on the light-receiving side.

25 14. The photovoltaic power generation system according to Claim 1, wherein live portions of the photovoltaic power generation system are exposed in

part.

15. A method of controlling a photovoltaic power generation system comprising a solar cell module, a
5 restricted area including an area in which the solar cell module is installed, detecting means for detecting intrusion of an intruder into the restricted area, and electric shock preventing means,

wherein when the detecting means detects the
10 intrusion of the intruder into the restricted area, the electric shock preventing means is activated based on a signal outputted from the detecting means.

16. The method according to Claim 15, wherein the
15 photovoltaic power generation system comprises means for preventing the intrusion of the intruder into the restricted area.

17. The method according to Claim 16, wherein the
20 means for preventing the intrusion of the intruder is a stockade, a wall, a fence, or a ditch.

18. The method according to Claim 16, wherein the
25 means for preventing the intrusion of the intruder is double means for preventing the intrusion of the intruder.

19. The method according to Claim 18, wherein the detecting means is mounted on inside means for preventing the intrusion of the intruder out of the double means for preventing the intrusion of the intruder.

20. The method according to Claim 15, wherein the detecting means is either of a proximity sensor, an optical sensor, a magnetic sensor, a magnet sensor, a temperature sensor, a humidity sensor, an impact sensor, an acceleration sensor, a weight sensor, a current sensor, and an electromagnetic sensor.

21. The method according to Claim 15, wherein the electric shock preventing means is means for shorting the solar cell module or a solar cell string consisting of the solar cell modules connected in series.

22. The method according to Claim 21, wherein the electric shock preventing means comprises a circuit breaker and the circuit breaker disconnects the solar cell module or the solar cell string from the photovoltaic power generation system to deactivate the module or the string.

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23. The method according to Claim 21 or 22, wherein the solar cell string is at least two solar

cell strings connected in parallel to each other.

24. The method according to Claim 15, wherein the electric shock preventing means has a function of releasing the electric shock preventing means.

25. A method of controlling a photovoltaic power generation system comprising a solar cell array comprised of a plurality of solar cell modules connected, one sensor or a plurality of sensors arranged around the solar cell array, and a switch for establishing a short circuit between output terminals of the solar cell array,

wherein the short circuit between the output terminals is established based on an output signal from the sensor.

26. The method according to Claim 25, wherein when the output signal of the sensor is not more than a predetermined value, the short circuit between the output terminals is established.

27. The method according to Claim 26, wherein an alarm is issued before the short circuit between the output terminals is established.

28. The method according to Claim 25, wherein

when the output signal of the sensor is not more than a predetermined value, an alarm is issued and thereafter the short circuit between the output terminals is established after a lapse of a predetermined time.

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29. The method according to Claim 25, wherein the short circuit between the output terminals is retained before a release operation is carried out.

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30. A method of controlling a photovoltaic power generation system comprising a plurality of solar cell strings each consisting of a plurality of solar cell modules, a plurality of sensors arranged around each of the solar cell strings, and a plurality of switches for establishing a short circuit between output terminals of each of the solar cell strings,

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wherein the plurality of solar cell strings are connected in parallel and the short circuit between output terminals is established on a string-by-string basis for the plurality of solar cell strings, based on output signals from the plurality of sensors.

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31. The method according to Claim 30, wherein when output signals from some of the plurality of sensors are not more than a predetermined value, the short circuit between output terminals is established for each of solar cell strings corresponding to the

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sensors having outputted the output signals of not more than the predetermined value.

32. The method according to Claim 31, wherein an
5 alarm is issued before the short circuit between output terminals is established.

33. The method according to Claim 30, wherein
when output signals from some of the plurality of
10 sensors are not more than a predetermined value, an alarm is issued and thereafter the short circuit between output terminals is established for each of solar cell strings corresponding to the sensors having
outputted the output signals of not more than the
15 predetermined value, after a lapse of a predetermined time.

34. The method according to Claim 30, wherein a
short-circuit state between output terminals of a
20 shorted solar cell string is retained before a release operation is carried out.

35. The method according to Claim 15, wherein the
solar cell module is installed so that a photovoltaic
25 element provided in an outermost surface on the light-receiving side is exposed directly to the atmosphere.

36. The method according to Claim 15, wherein the solar cell module has a coating only on an outermost surface on the light-receiving side.

5 37. The method according to Claim 15, wherein the solar cell module is coated at least on a module-by-module basis on the light-receiving side.

10 38. The method according to Claim 15, wherein live portions of the photovoltaic power generation system are exposed in part.

15 39. A method of controlling a photovoltaic power generation system comprising a solar cell string comprised of a plurality of solar cell modules connected, a plurality of sensors provided around the solar cell string, and a switch for establishing a short circuit between output terminals of the solar cell string, based on output signals from the plurality of sensors, the method comprising:

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 a first step of measuring the output signals from the plurality of sensors;

 a second step of normalizing values of the output signals;

25 a third step of calculating a comparison calculated value D, which is defined below, when at least one of a plurality of normalized output signal

values A_x is larger than a reference value S ,

the comparison calculated value $D = (\text{a minimum of the plurality of normalized output signal values } A_x) / (\text{a maximum of the plurality of normalized output signal values } A_x)$; and

a fourth step of establishing the short circuit between the output terminals by the switch when the comparison calculated value D is smaller than a comparison reference value D_0 .

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40. The method according to Claim 39, wherein an alarm is issued before the short circuit between the output terminals is established.

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41. The method according to Claim 40, wherein when an output period of the alarm is longer than a time T_0 , the short circuit between the output terminals is established by the switch.

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42. The method according to Claim 39, wherein the sensors are comprised of solar cells.

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43. A method of controlling a photovoltaic power generation system comprising a plurality of solar cell strings connected in parallel, each solar cell string being comprised of a plurality of solar cell modules connected and having a plurality of sensors provided

around the solar cell string and a switch for
establishing a short circuit between output terminals
of the solar cell string, the method comprising:

(1) carrying out for each of the plurality of
5 solar cell strings,
a first step of measuring output signals from the
plurality of sensors,

a second step of normalizing values of the output
signals, and
10 a third step of calculating a comparison
calculated value D_y , which is defined below, when at
least one of a plurality of normalized output signal
values A_x is larger than a reference value S ,

the comparison calculated value $D_y = (\text{a minimum of}$
15 $\text{the plurality of normalized output signal values } A_x) / (\text{a}$
 $\text{maximum of the plurality of normalized output signal}$
 $\text{values } A_x)$; and

(2) carrying out a fourth step when at least one
of the comparison calculated values D_y of the plurality
20 of solar cell strings is smaller than a comparison
reference value D_0 ,

the fourth step being a step of establishing a
short circuit between output terminals of a solar cell
string corresponding to the comparison calculated value
25 D_y smaller than the comparison reference value D_0 , by
the switch.

44. The method according to Claim 43, wherein
before the short circuit is established between the
output terminals of the solar cell string corresponding
to the comparison calculated value D_y smaller than the
5 comparison reference value D_0 , an alarm is issued for
the solar cell string.

45. The method according to Claim 44, wherein
when an output period of the alarm is longer than a
10 time T_0 , the short circuit is established between the
output terminals of the solar cell string corresponding
to the comparison calculated value D_y smaller than the
comparison reference value D_0 .

15 46. The method according to Claim 43, wherein the
sensors are comprised of solar cells.